T06T90'55758860

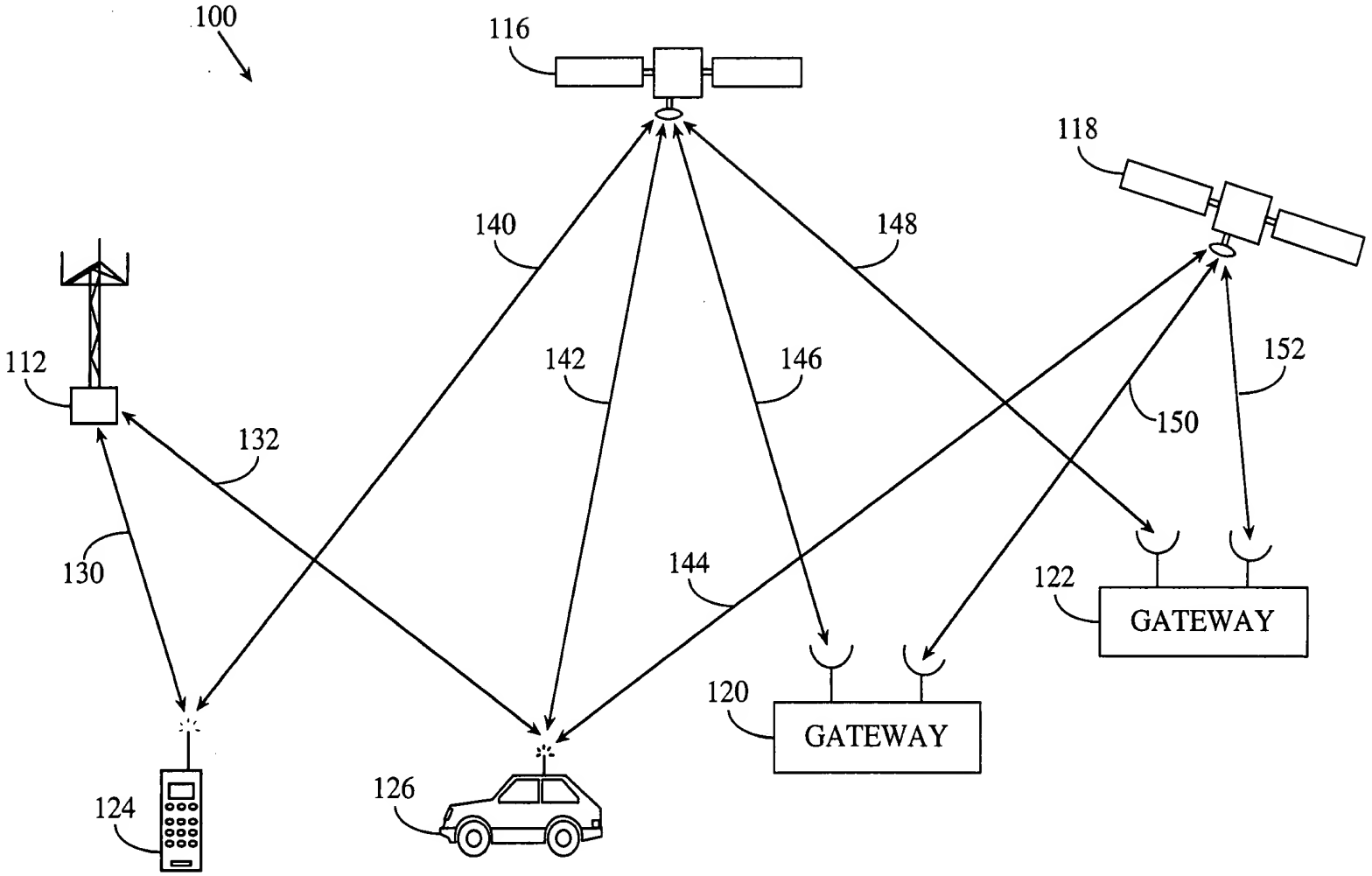

FIG. 1

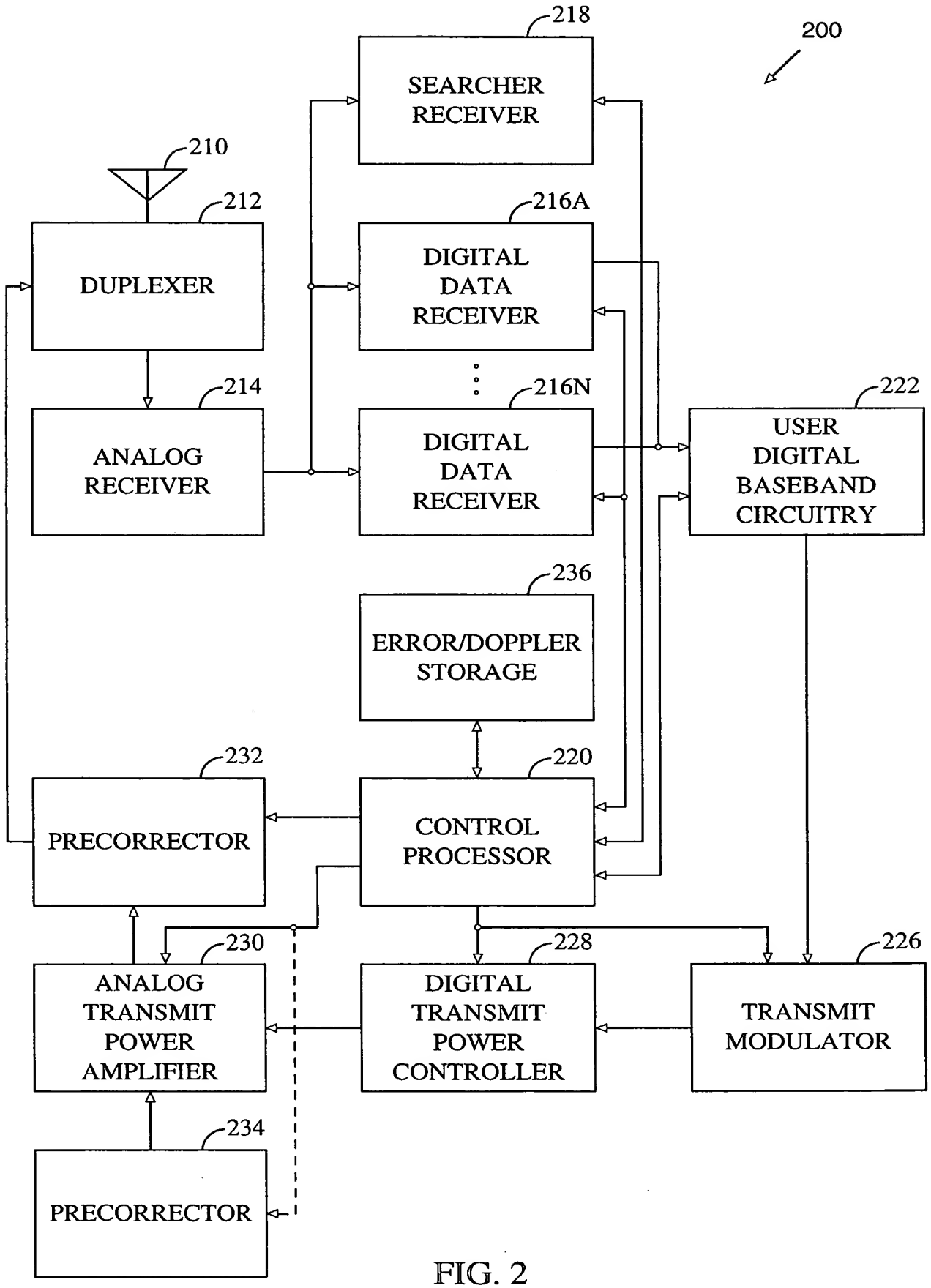

FIG. 2

09855755.060901

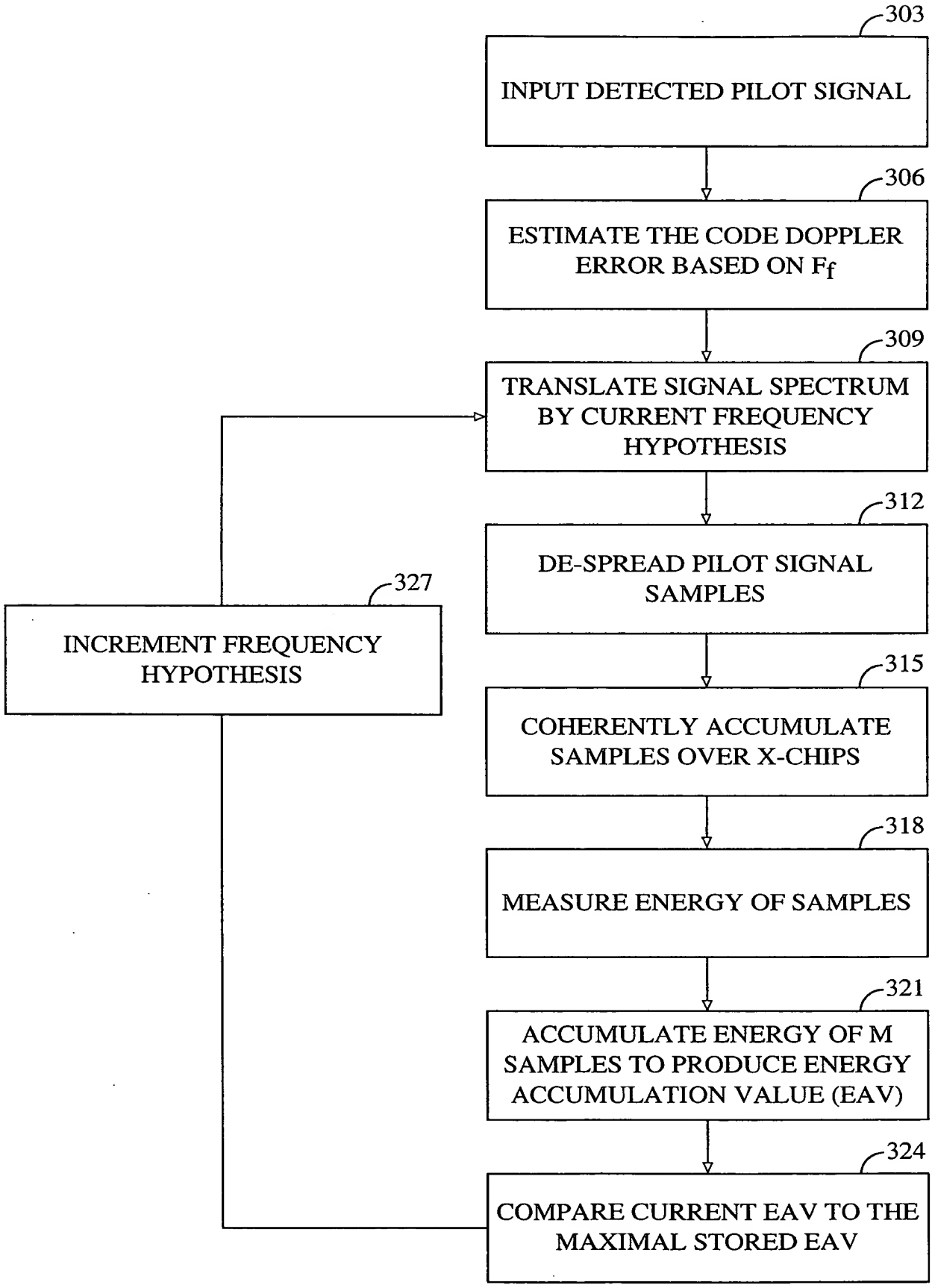

FIG. 3

EP 0 985 955 A1

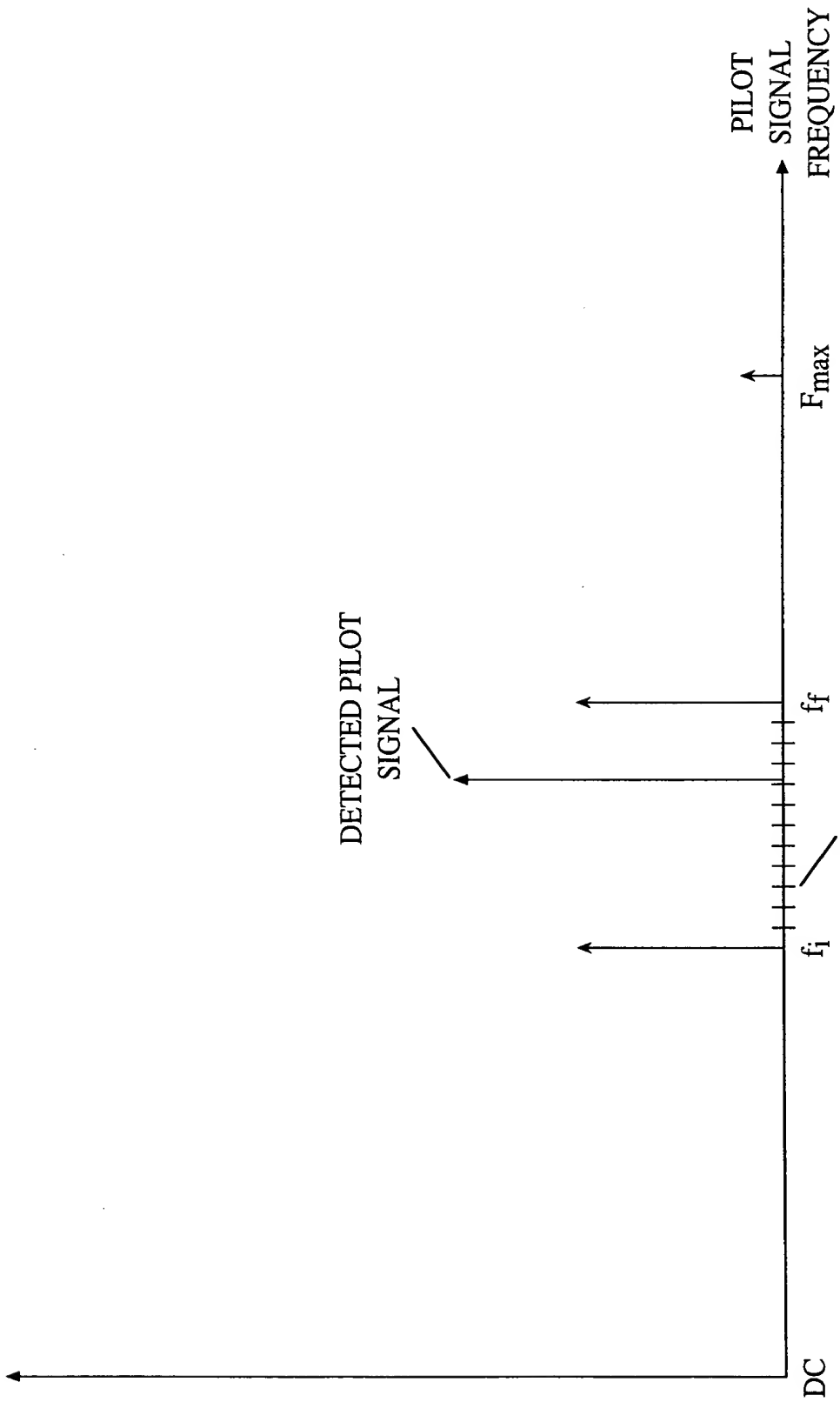
PILOT SIGNAL FREQUENCY
F_{max}
f_f
f_i
FREQUENCY HYPOTHESIS
DETECTED PILOT SIGNAL
DC

FIG. 4

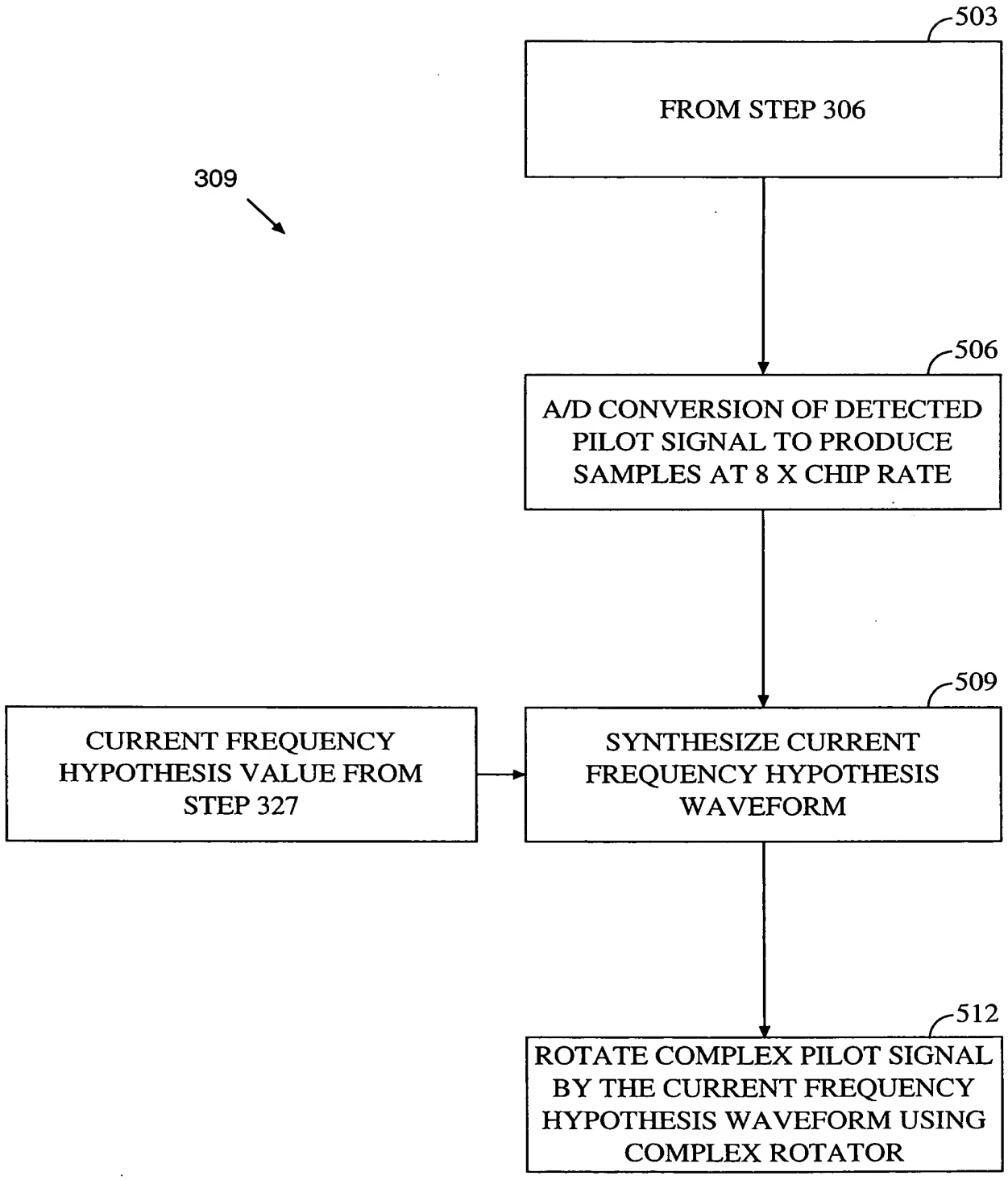
503
FROM STEP 306
309
506
A/D CONVERSION OF DETECTED PILOT SIGNAL TO PRODUCE SAMPLES AT 8 X CHIP RATE
509
CURRENT FREQUENCY HYPOTHESIS VALUE FROM STEP 327
SYNTHESIZE CURRENT FREQUENCY HYPOTHESIS WAVEFORM
512
ROTATE COMPLEX PILOT SIGNAL BY THE CURRENT FREQUENCY HYPOTHESIS WAVEFORM USING COMPLEX ROTATOR

FIG. 5

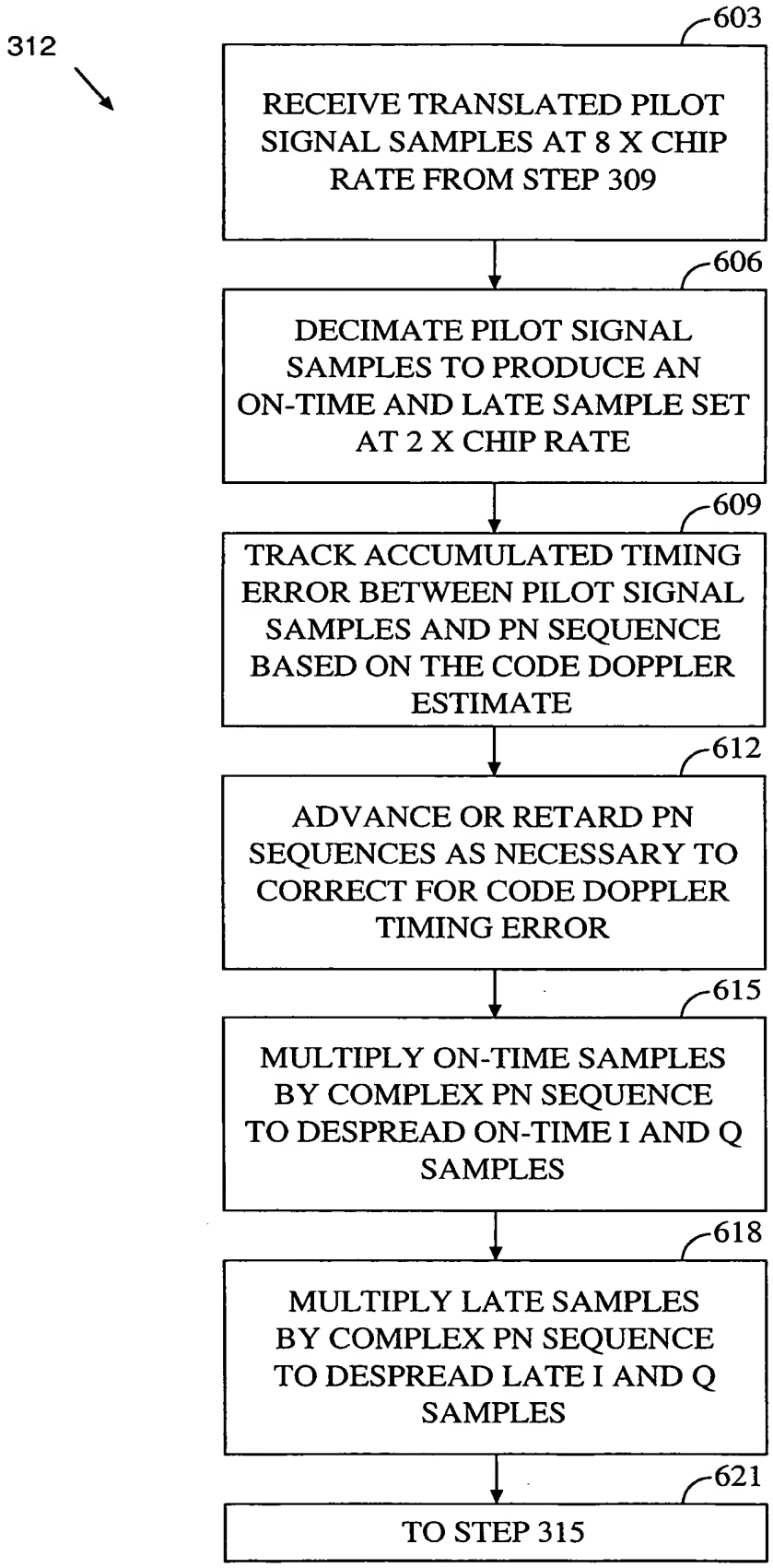

FIG. 6

0988575.050401

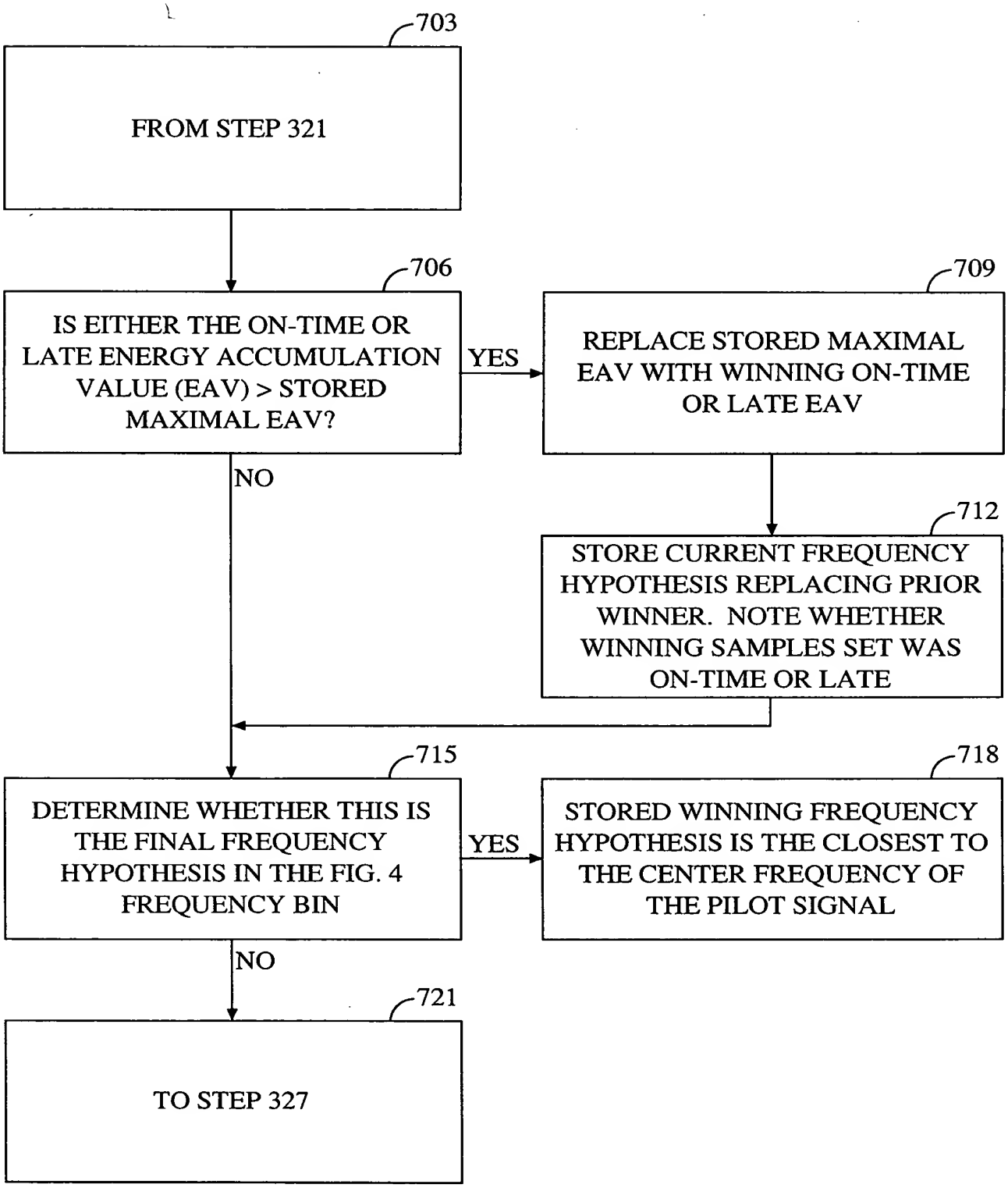
703
FROM STEP 321
706
IS EITHER THE ON-TIME OR LATE ENERGY ACCUMULATION VALUE (EAV) > STORED MAXIMAL EAV?
YES
709
REPLACE STORED MAXIMAL EAV WITH WINNING ON-TIME OR LATE EAV
NO
712
STORE CURRENT FREQUENCY HYPOTHESIS REPLACING PRIOR WINNER. NOTE WHETHER WINNING SAMPLES SET WAS ON-TIME OR LATE
715
DETERMINE WHETHER THIS IS THE FINAL FREQUENCY HYPOTHESIS IN THE FIG. 4 FREQUENCY BIN
YES
718
STORED WINNING FREQUENCY HYPOTHESIS IS THE CLOSEST TO THE CENTER FREQUENCY OF THE PILOT SIGNAL
NO
721
TO STEP 327

FIG. 7

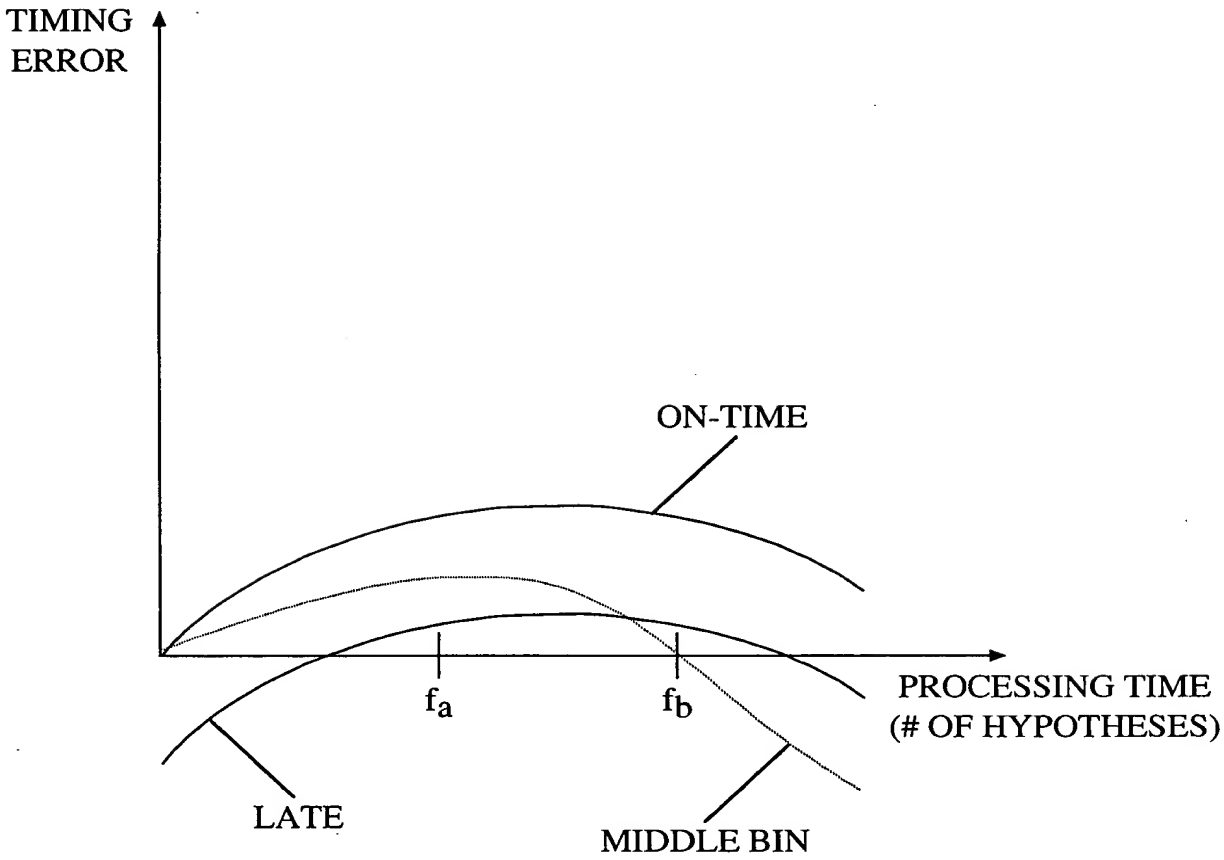
TIMING
ERROR
ON-TIME
PROCESSING TIME
(# OF HYPOTHESES)
f_a
f_b
LATE
MIDDLE BIN

FIG. 8

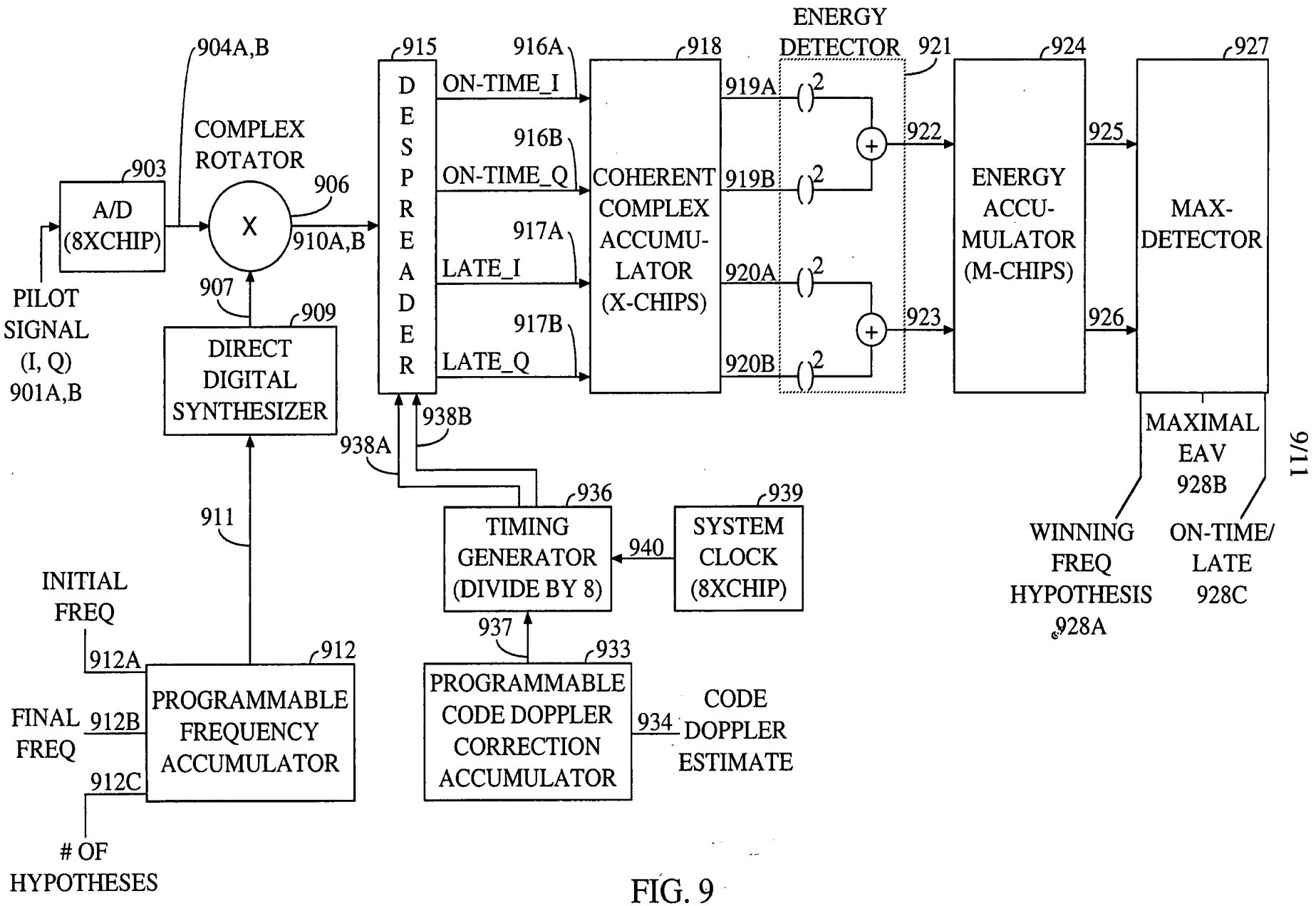
ENERGY
DETECTOR
904A,B
915
916A
918
921
924
927
COMPLEX
ROTATOR
903
906
A/D
(8XCHIP)
X
910A,B
DESPREADER
ON-TIME_I
916B
ON-TIME_Q
917A
LATE_I
917B
LATE_Q
COHERENT
COMPLEX
ACCUMU-
LATOR
(X-CHIPS)
919A
919B
920A
920B
922
923
ENERGY
ACCU-
MULATOR
(M-CHIPS)
925
926
MAX-
DETECTOR
PILOT
SIGNAL
(I, Q)
901A,B
907
909
DIRECT
DIGITAL
SYNTHESIZER
938A
938B
MAXIMAL
EAV
928B
936
939
TIMING
GENERATOR
(DIVIDE BY 8)
940
SYSTEM
CLOCK
(8XCHIP)
WINNING
FREQ
HYPOTHESIS
928A
ON-TIME/
LATE
928C
911
INITIAL
FREQ
912A
912
937
933
PROGRAMMABLE
FREQUENCY
ACCUMULATOR
PROGRAMMABLE
CODE DOPPLER
CORRECTION
ACCUMULATOR
FINAL
FREQ
912B
934
CODE
DOPPLER
ESTIMATE
912C
OF
HYPOTHESES

FIG. 9

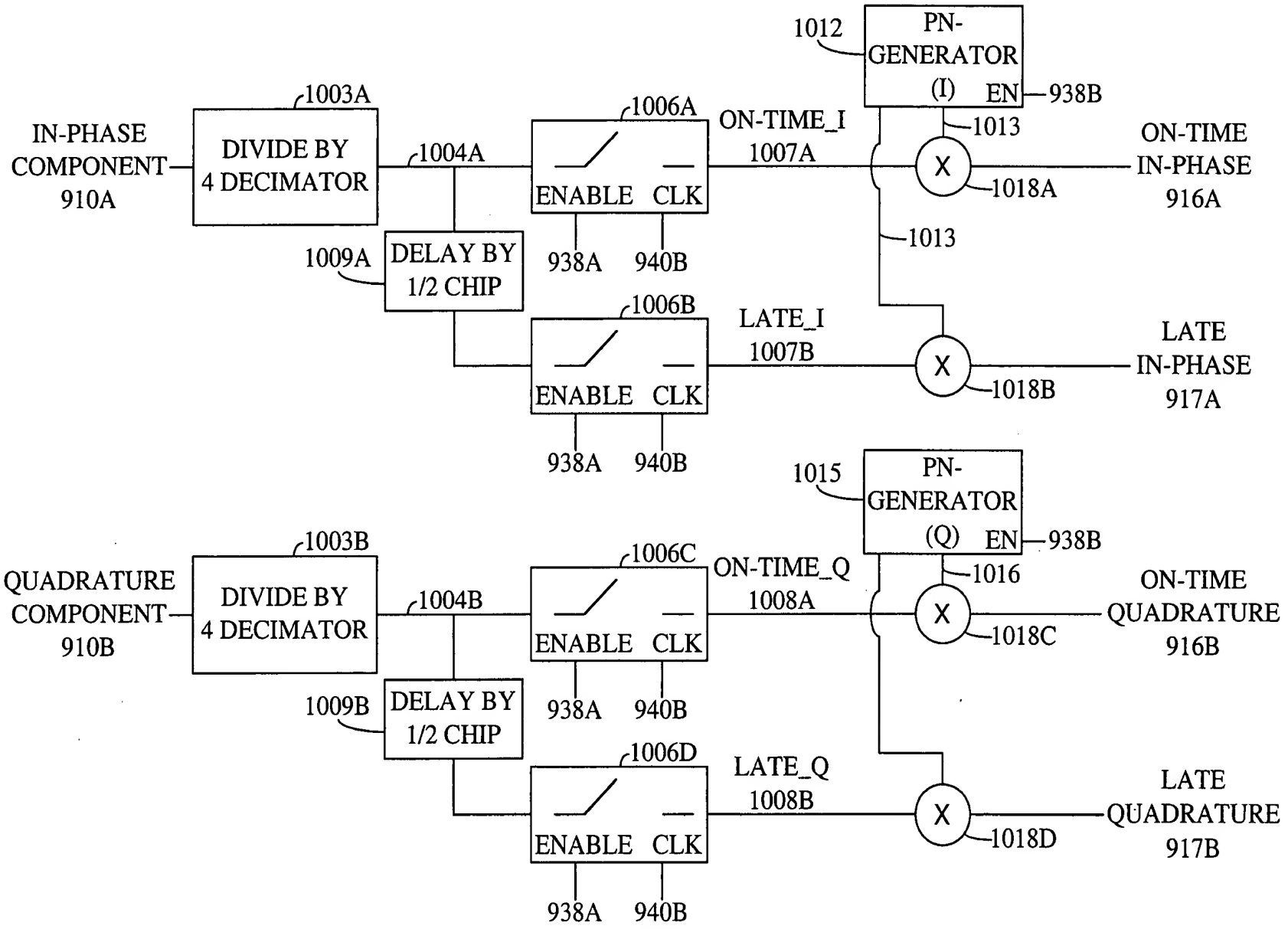
1012
PN-GENERATOR (I)
EN
938B
1013
1003A
IN-PHASE COMPONENT 910A
DIVIDE BY 4 DECIMATOR
1004A
1006A
ENABLE CLK
ON-TIME_I 1007A
X
1018A
ON-TIME IN-PHASE 916A
1009A
DELAY BY 1/2 CHIP
938A
940B
1013
1006B
ENABLE CLK
LATE_I 1007B
X
1018B
LATE IN-PHASE 917A
938A
940B
1015
PN-GENERATOR (Q)
EN
938B
1016
1003B
QUADRATURE COMPONENT 910B
DIVIDE BY 4 DECIMATOR
1004B
1006C
ENABLE CLK
ON-TIME_Q 1008A
X
1018C
ON-TIME QUADRATURE 916B
1009B
DELAY BY 1/2 CHIP
938A
940B
1006D
ENABLE CLK
LATE_Q 1008B
X
1018D
LATE QUADRATURE 917B
938A
940B

FIG. 10

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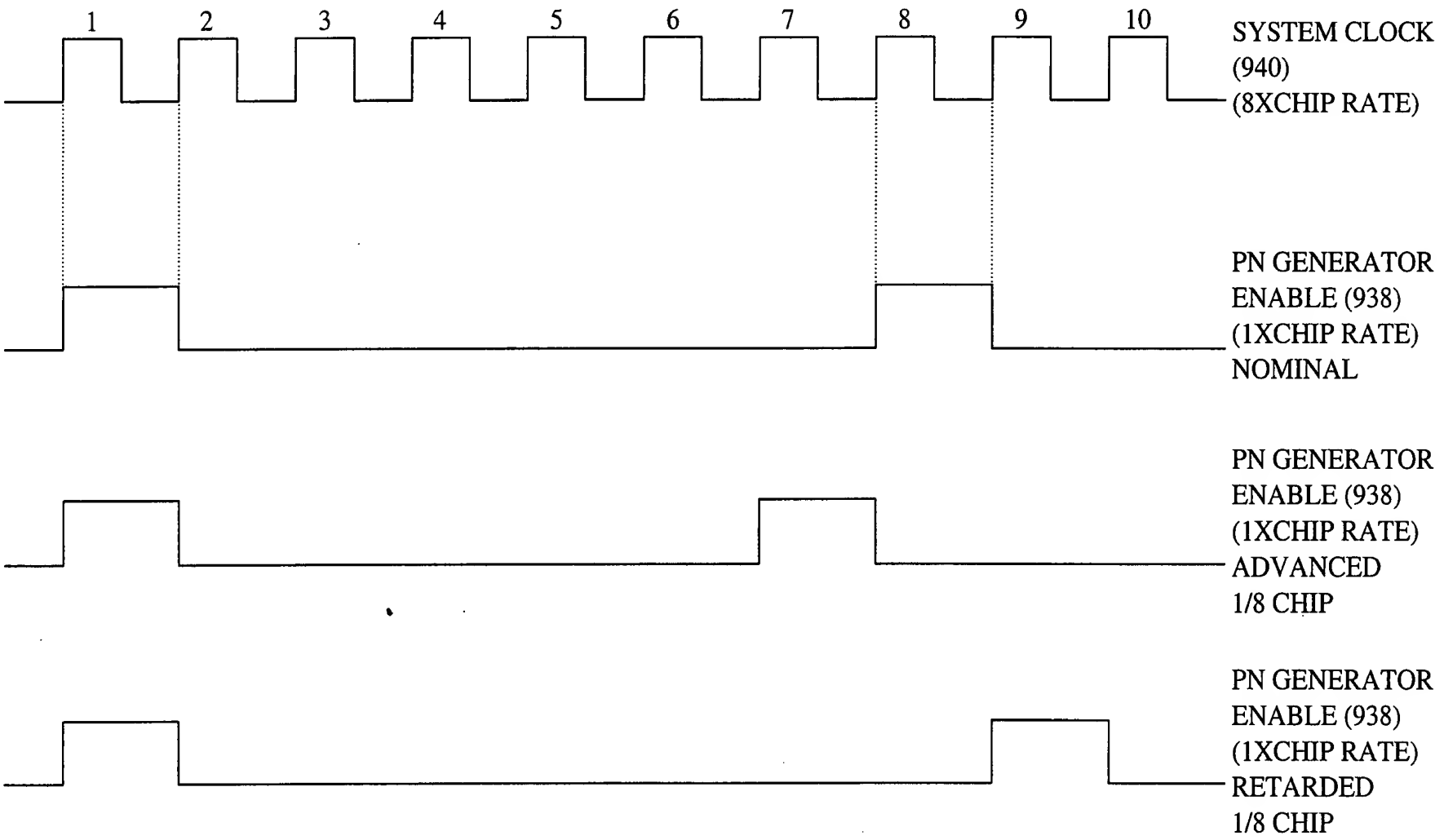

FIG. 11